Ver 1.1

03/02/2009

# USER MANUAL

# MX-1800 / 3600

***Modular Digital Matrix Router***

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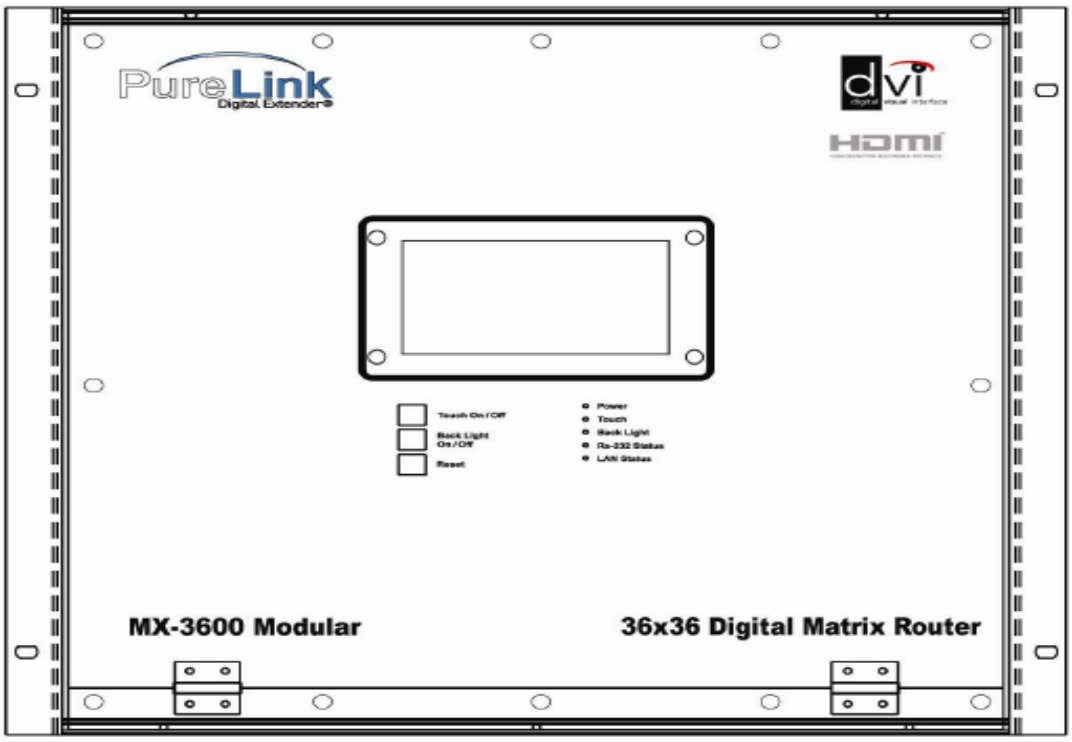
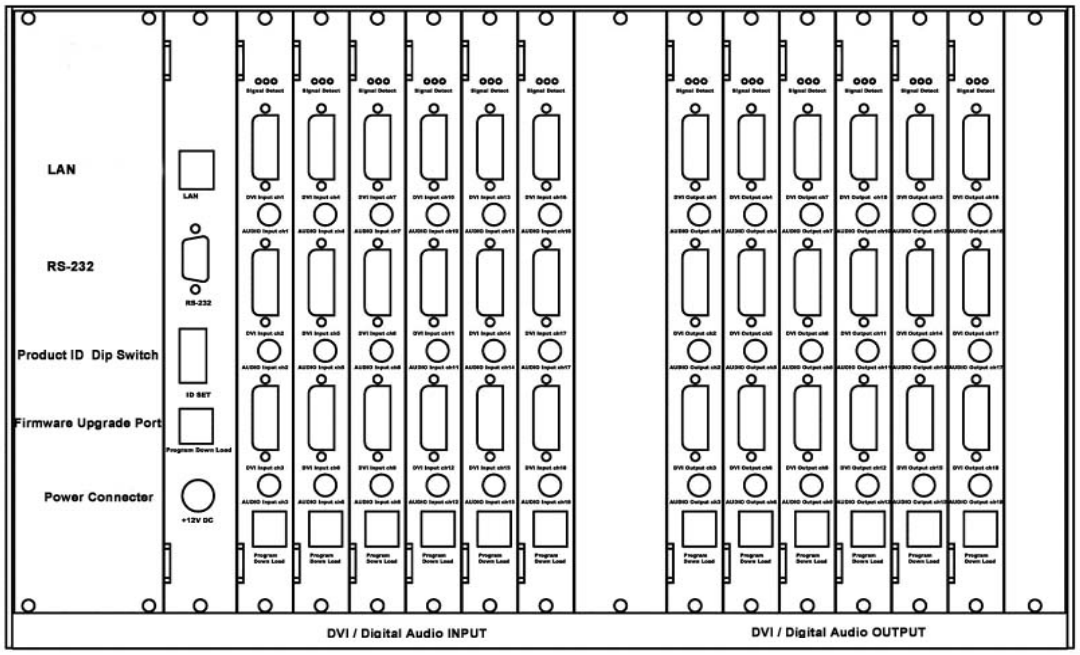
# MX Series Front Panel Diagram

< MX-1800 Modular Matrix Router>

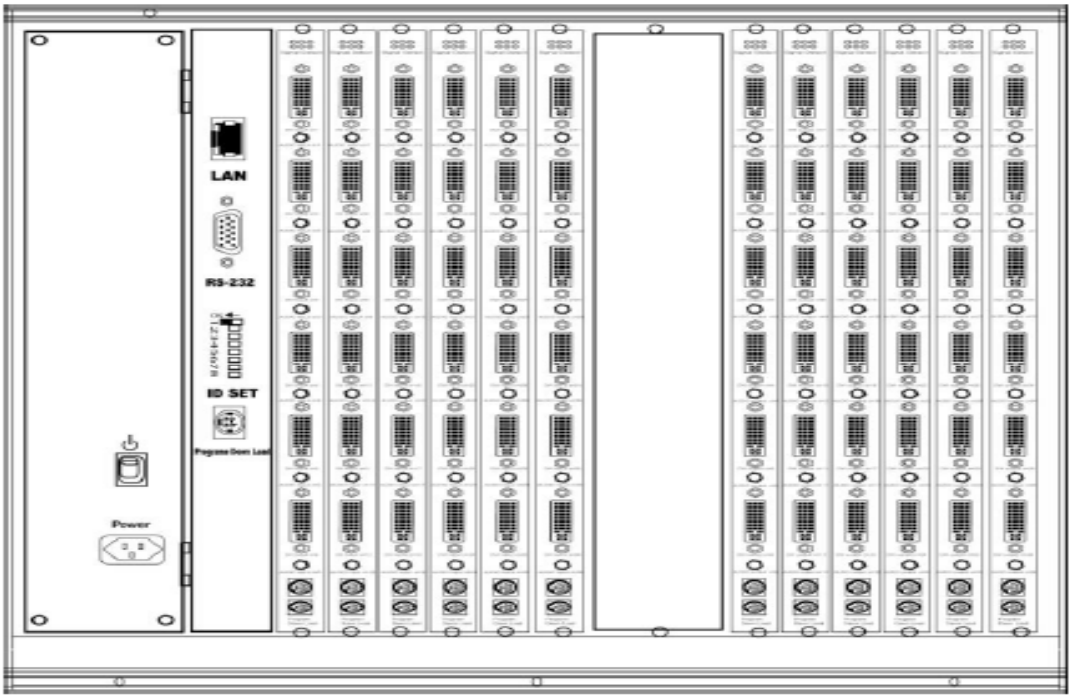



< MX-3600 Modular Matrix Router>

# MX Series Rear Panel Diagram




< MX-1800 Modular Matrix Router>




< MX-3600 Modular Matrix Router>

# 1. Basic Knowledge Of The Product

***1-1 Safety Information and Instruction***

- All the safety and user manual should be read before the appliance is operated.
- The safety and operating instructions should be retained for future reference.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this equipment near areas of running water or dense condensation.
- This product should be operated by a proper power sources indicated on the marked label. If you are not sure of the type of power supplied to your home, consult your local electricity company. Please refer to the user manual guide if the product has to be operated by using other type of power source, such as portable battery power supply.
- This equipment may be equipped with a 3 wire grounding-type plug, a plug having a third (grounding) pin. This pin will only fit in to a grounding type power outlet. This is a safety feature. In addition, this equipment should be plugged into a properly grounded outlet in order to avoid electric shock. Do not bypass the grounding features of the power cable or plug.
- Opening in the cabinet are provided for ventilation and to ensure reliable operation of the equipment and to protect it from overheating. The openings should never be blocked.
- Do not use any damaged power cords or plugs, or loosed outlets, this may cause electrical shock or fire.
- Do not put any heavy object on this equipment.
- Keep it away from liquid, magnetic, inflammable substances.
- Turn off power before insert or take out INPUT/OUTPUT slot card.
- Input/Output cards may be damaged when they are replaced with power turned on.

**If you experience any malfunctioning of product or have any question as to operation of the product, please contact our customer service center.**

Dtrovision, Inc.
Tel: 201-488-3232
support@dtrovision.com

**Declaration of Conformity**

According to Council Directive 73/23/EEC (February 19, 1973) on the Harmonization of the Laws of Member States relating to Electrical Equipment; Council Directive 89/336/EEC (May 3, 1989) on Electromagnetic Compatibility; Council Directive 93/68/EEC (July 22, 1993)-Amending Directives 89/336/EEC (MC) and 73/23/EEC (Low Voltage Equipment Safety), and/or CPU Boards and Power Supplies used Council Directive 93/68/EEC with Matrix, Dtrovision LLC., 9A Bergen Turnpike Little Ferry, NJ 07643 201-488-3232, declares under sole responsibility, that the product identifies with 93/66/EEC of the Council Directive Low Voltage Equipment Safety. Each product marketed is identical to the representative unit tested and found to be compliant with the standards.

## ***1-2 Package Contents***

- Main body: MX-1800 / MX-3600
- Power adapter: DC12V, 12A
- RS-232C & LAN cables
- User's manual

## ***1-3 Product Features***

Digital Matrix Router (MX-1800/3600) is an integrated digital processor that supports all kinds of digital interfaces such as DVI, HDMI, which are applied to most digital products. MX Matrix Series are designed to meet customers' demands by providing prompt availability of DVI or HDMI Input / Output cards. MX-1800 allows you to populate the Input/ Output card with any connection (DVI or HDMI) you like and expand as needed.

- 19" standard rack mountable (6U).

- Support up to 18 (36) input / output channels.(MX-1800 /MX-3600)

- Enable to insert different combination of DVI/HDMI Input / Output cards.

- Flexible EDID Management feature.

- Plug-and-play which makes set up and installation much easier.

- Compliant to High-bandwidth Digital Content Protection (HDCP)

- Supports high resolution up to WUXGA(1920x1200)@60Hz, 1080p@60Hz

- Convenient control methods:
  - Control via front panel touch screen
  - Control via LAN (TCP/IP).
  - Control via RS-232C port

- It has an instantaneous noise protection circuit built in input and output ports therefore it can protect expensive equipment from fault caused by noises (if any).

- Any latest firmware version can be upgraded via supplied download cable.

***1-4 Names and Function of Each Part***

• Main Chassis (For MX-1800 or MX-3600)

• DVI Input / Output card with 3 or 6 ports, digital coaxial audio, HDCP compliant.

• DVI Input / Output card with 3 or 6 ports, digital coaxial audio, Non-HDCP.

• HDMI Input / Output card with 3 or 6 ports.

***1-5 Installation environments and methods***

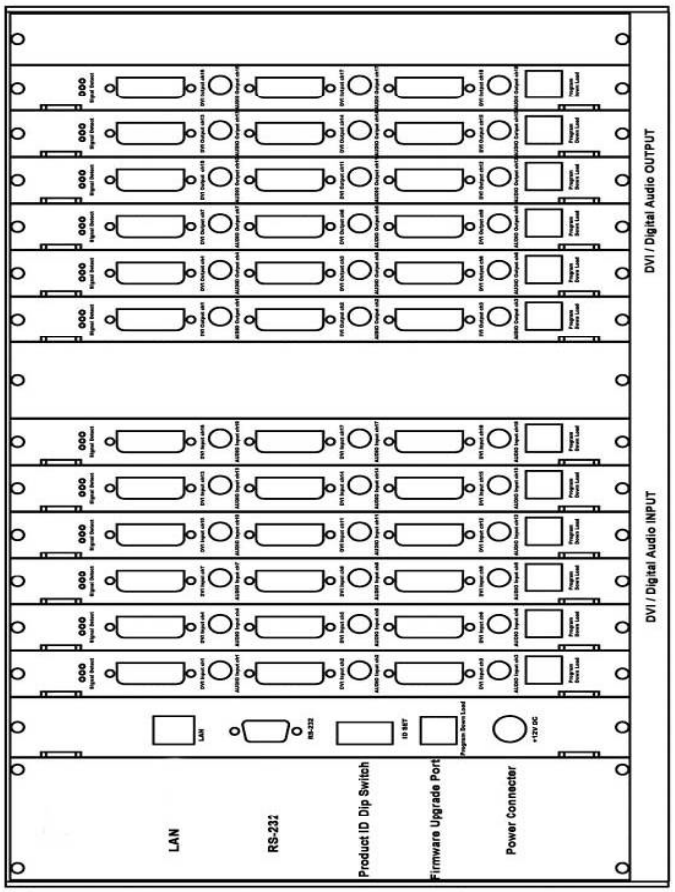
▪ For installation environments, we recommend the following environments for our matrix.

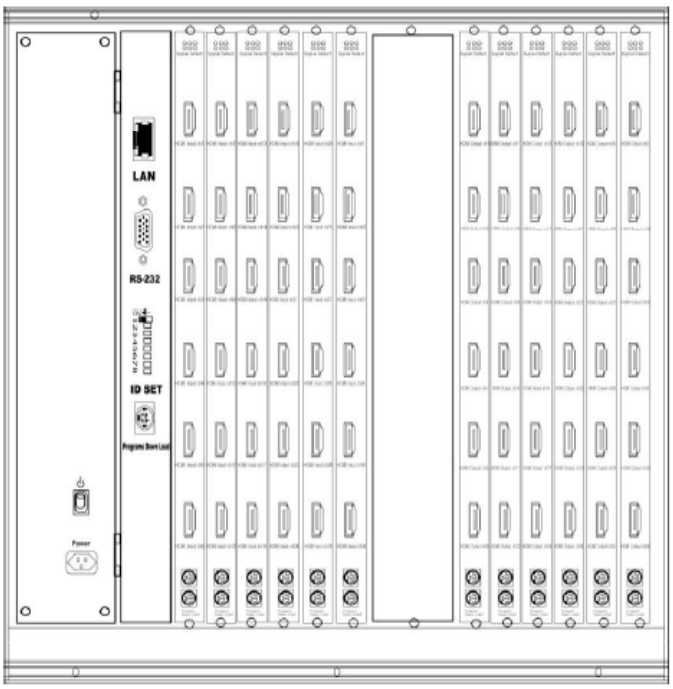
▪ Below 30˚C of ambient temperature(Best condition)

▪ Install and operate in the environment below 60% of ambient humidity (Best condition)

▪ Use it in the environment of free of vibrations and dusts and in good ventilation condition

▪ Recommend stabilized AC input power (Recommend to use AVR).



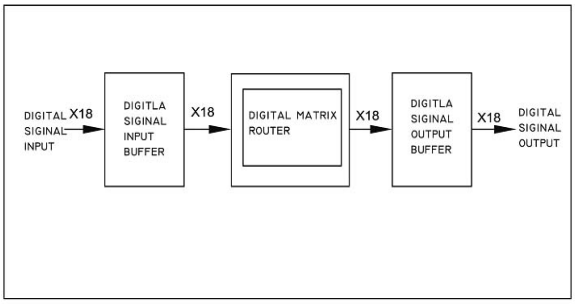

< Picture A - 1 >

# 2. Functions of the product

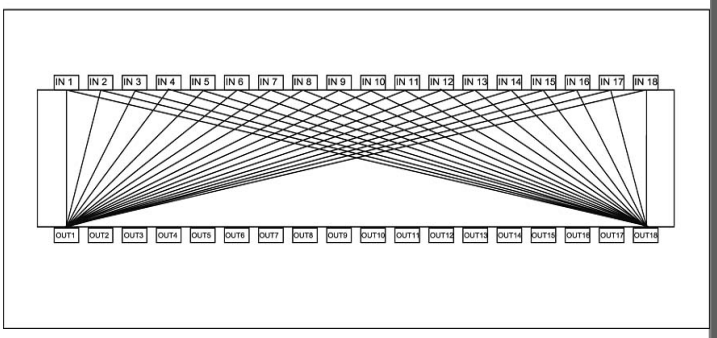
## *2-1. MX-1800 / 3600 System Diagram*

Any combination of input channel can be routed to any output channel or single input channel can be assigned to multiple output channel by using front touch panel, RS-232c or LAN (TCP/IP) communication port.

**Digital Matrix Router Signal Pass**




**Digital Matrix Router Switching**




< Picture B - 1 >

***2-2 Technical Specification***

- Type of signals: TMDS signals, digital R.G.B. 2k
- HDMI data transmission band: 2.25 Gbps (single link).
- DVI-D data transmission band: 1.65 Gbps (single link).
- HDMI version 1.3 with deep color 36 bits
- Resolutions: VGA (640*480) ~ WUXGA (1900*1200)@60Hz, 720p~1080i/p.
- Audio IN/OUT: digital audio coaxial (In DVI board only)
- Panel: 7 inch touch panel, pressure recognition sensor
- Port switch control: Front LCD touch panel, RS-232C port, LAN port.
- Input / output port: Input 18(36) / output 18(36)
- Input / output connector: DVI-D 29 pin Female or HDMI 19 pin Female
- Power source: DC12V, 12.5A
- Power consume: 100Watts/max : 120Watts.
- Size (Width * Length *Height, INCH): 17.2” * 10.2” * 10.5”. (MX-1800) / 19” * 10.5” * 17.5” (MX-3600)
- Weight: 26.5 lbs (MX-1800) / 46 lbs (MX-3600)

# 3. How to operate

***3-1 How to Create Channels***

When matrix is turned on, the front touch panel LCD display will show the list of Main Menu as follows:

**Power switch:** Power On/Off

**Touch On/Off:** Touch panel operation On/Off

**Back Light On/Off:** Touch panel backlight On/Off

**Reset:** System reboots after press and hold the button for 3~4 seconds

**Touch Panel Main Menu**

**CREATE:** To create input/output channel

**EDID:** Read and save the EDID data from connected display device

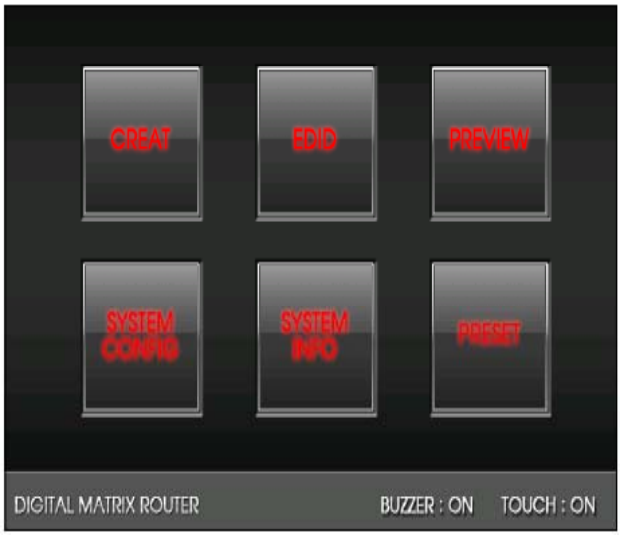
**PREVIEW:** Preview the status of selected input/output channel or EDID setting

**SYSTEM CONFIG:** Allows to change the system setting

**SYSTEM INFO:** Review the general configuration of the system

**PRESET:** preset input/output channels which are often used

<Please refer to Picture C-1>




< Picture C – 1 >

**How to Create Channel:**

Select Input / Output channel: When CREATE icon on main menu is selected, Pic. C-2 will appears on the front LCD display.

Step1. CHANNEL INPUT menu -> Select any Input channel -> Go to Step 2.

<Please refer to Picture C-2>

< Picture C – 2 >

Step 2. Press CHANNEL OUTPUT button -> select Output channel (multiple output channel can be selected) -> Go to Step 3.

*Press CANCEL button to cancel the current job -> return to main menu

**SET ALL:** Select all output

**CLEAR ALL:** Cancel all selection

<Please refer to Picture C-3>

< Picture C – 3 >

Step 3. Confirmation
**OK:** Finish the channel set up ->return to main menu

**RETURN:** Returns to CHANNEL OUTPUT menu

<Please refer to Picture C-4>

< Picture C – 4 >

**How to read and save EDID:**

**Read and Save EDID** : If EDID icon is selected, Pic. D-1 will appears on the front LCD display.

<Please refer to Picture D-1>

< Picture D – 1 >

Step1. OUTPUT EDID SELECT menu -> select OUTPUT channel (to retrieve EDID information from connected display device.) -> go to Step 2.

<Please refer to Picture D-2>

< Picture D – 2 >

Step 2. Press EDID INPUT button -> select INPUT channel (one or multiple input channel can be selected) -> press ENTER button to confirm.

**SET ALL:** Select all output

**CLEAR ALL:** Cancel all selection

**OK:** Finish the EDID save -> return to main menu

**RETURN:** Returns to INPUT EDID SELECT menu

<Please refer to Picture D-3>

< Picture D – 3 >

**3-1b Preview of Input and Output Channel or EDID selection:**

When PREVIEW icon is selected, Pic.D-4 will appears on the front LCD display.

**INPUT VIEW:** View the status of selected Input channel

**OUTPUT VIEW:** View the status of selected Output channel

**MATRIX VIEW:** View the status of selected all input/output channel on single display

**ARROW:** Move the screen to front, back, left and right side

**CANCEL:** Return to main menu

<Please refer to Picture D-4>

< Picture D – 4 >

When EDID Channel button is selected, EDID PREVIEW menu shows as Pic.D-5

**INPUT VIEW:** View the status of selected input channel

**OUTPUT VIEW:** View the status of selected output channel

**MATRIX VIEW:** View the status of selected all Input / Output EDID setting

**ARROW:** Move the screen to front, back, left and right side

**CANCEL:** Returns to the main menu

<Please refer to Picture D-5>

< Picture D – 5 >

**System Configuration:** When SYSTEM CONFIG is selected, Pic. E- 1 will appears on the front LCD Display.

SYSTEM CONFIG is designed to change the configuration of RS-232, LAN, and SYSTEM.

<Please refer to Picture E-1>

**RS-232 Setup**

**Baud Rate:** Set up communication speed for RS-232, default: 19200bps

**DATA Bits:** Set up data bits, default: 8 bit

**Stop Bits:** Set up stop bits, default: 1 bit

**Parity:** Confirm parity, default: Disable

**SAVE:** Save any change you make

**CANCEL:** Returns to the main menu

<Please refer to Picture E-2>

**LAN Setup**

**Local IP Address:** Set up local IP address, default: 192.168.000.002

**Gateway IP Address:** Set up Gateway IP Address, default: 192.168.000.001

**Subnet Mask:** Set up Subnet Mask, default: 255.255.255.255

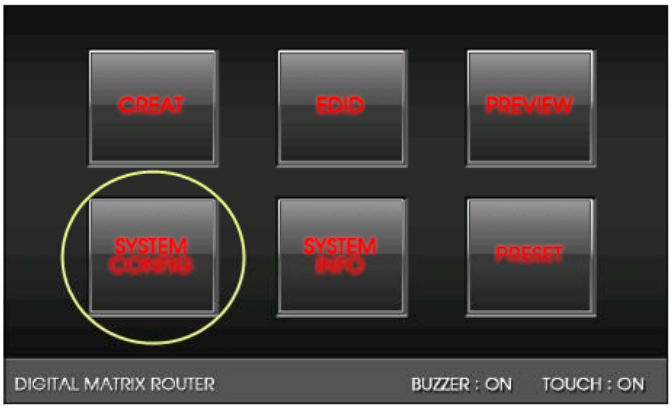
**Mac Address:** Set up Mac Address, default: 00.08.DC.00.00.00

**ALPHABET SELECT:** Select alphabet and number

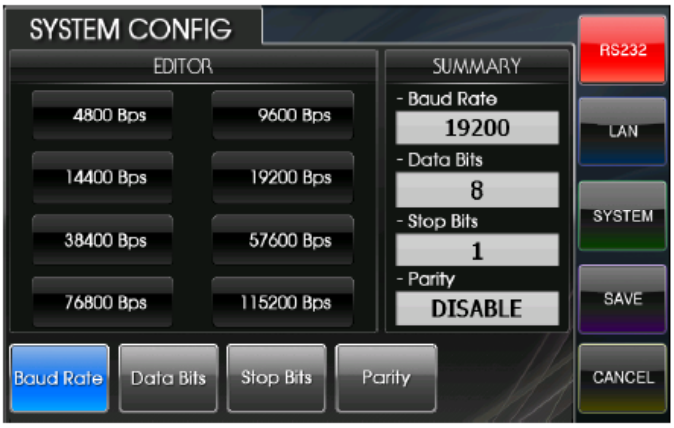
**SAVE:** Save any change you make

**CANCEL:** return to main menu

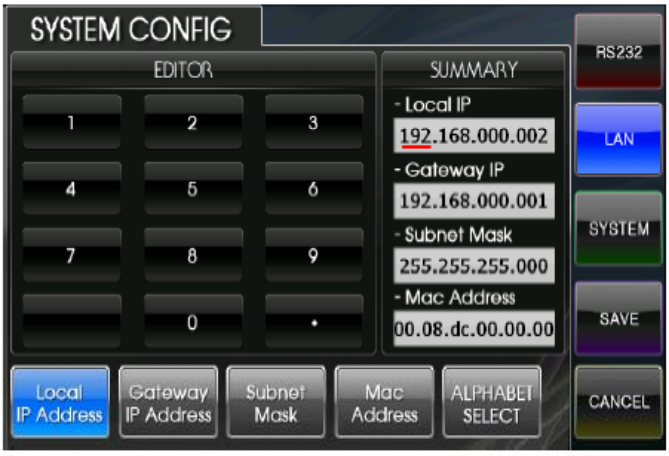
<Please refer to Picture H-3>




< Picture E – 1 >




< Picture E – 2 >




< Picture H – 3 >

## SYSTEM GENERAL CONFIGURATION

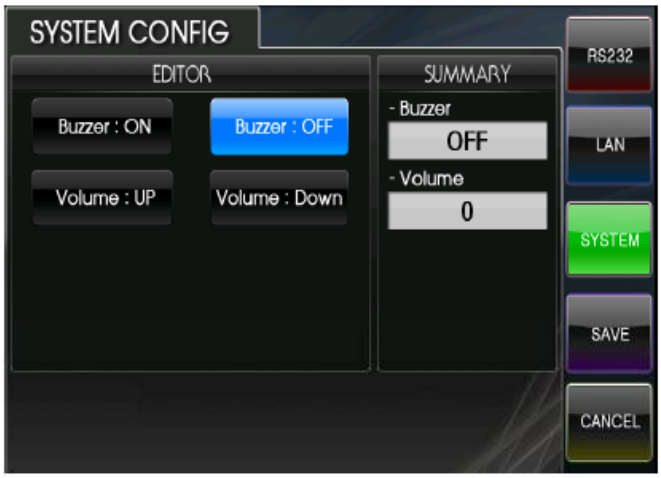
When SYSTEM icon is selected,
Pic E-4 will appear on the front LCD display.

**Buzzer:** Buzzer sound On/Off

**SAVE:** Save any change you make

**CANCEL:** Return to main menu

<Please refer to Picture E-4>



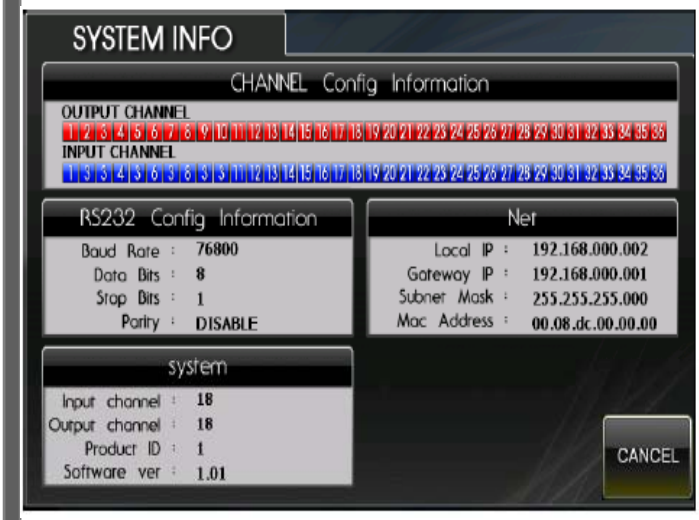

< Picture E – 4 >

## SYSTEM INFORMATION

SYSTEM INFO shows the current status of channel Configuration, LAN Config., RS232 Config., and General system information

**CANCEL:** Returns to the main menu

<Please refer to Picture E-5>




< Picture E – 5 >

**PRESET**

It allows users to have up to 20 different groups of preset. For example, lets say you want to use only 4 inputs & output channel and assign them in certain order. Then PRESET feature will help saving previous assignment.

**PRESET PREVIEW:** View the status of saved preset Channels

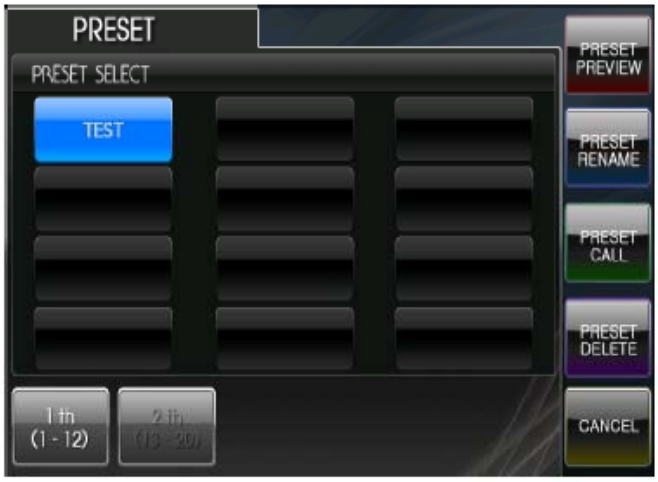
**PRESET RENAME**: Change the saved preset number and name

**PRESET CALL:** Change the current channels to one of the selected preset

**PRESET DELETE:** To delete any preset as needed

**CANCEL:** Returns to the main menu

<Please refer to Picture F-1>




< Picture F – 1 >

**PRESET NAME:** Change the name of preset selected by preset number. Up to 12 letters can be used to make name for selected preset.

**SAVE:** Save changed name

**CANCEL:** Returns to the main menu

<Please refer to Picture F-2>

< Picture F – 2 >

Preset Save: Create -> Input -> Select One or Multiple #-> Output-> Select One or Multiple ## ->

If you done selecting all Input and Output ->Enter-> Preset Save ->Preset Number -> Select # -> Preset Name ->Input Name->Save

Preset Call: Preset Call-> Select Preset Name -> Preset Call

***3-2 About Product ID***

- Product ID setting (use of DIP switch)
- The Product ID can be changed via DIP switch located on rear panel and ID number must be selected within ID number 1~255. if the ID number is set to “0”, it will become invalid number.
- It needs to be set up in order to identify the matrix when it attempts to communicate with external controller or PC control program.
- It’s in the form of binary number.

<Please refer to Picture G-1>

For example;

Product ID = 01 (00000001b) –

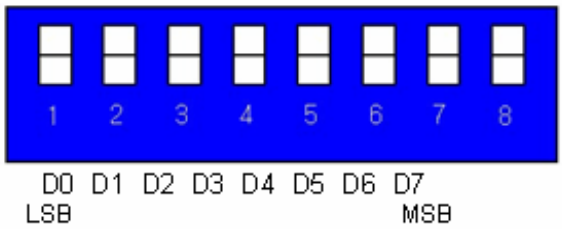
1 ON, 2 OFF, 3 OFF, 4 OFF,
5 OFF, 6 OFF, 7 OFF, 8 OFF,

Product ID = 10 (00001010b) –

1 OFF, 2 ON, 3 OFF, 4 ON,
5 OFF, 6 OFF, 7 OFF, 8 OFF,

Product ID = 23 (00010111b) –

1 ON, 2 ON, 3 ON, 4 OFF,
5 ON, 6 OFF, 7 OFF, 8 OFF




***The factory default product ID is always set to “1” ***

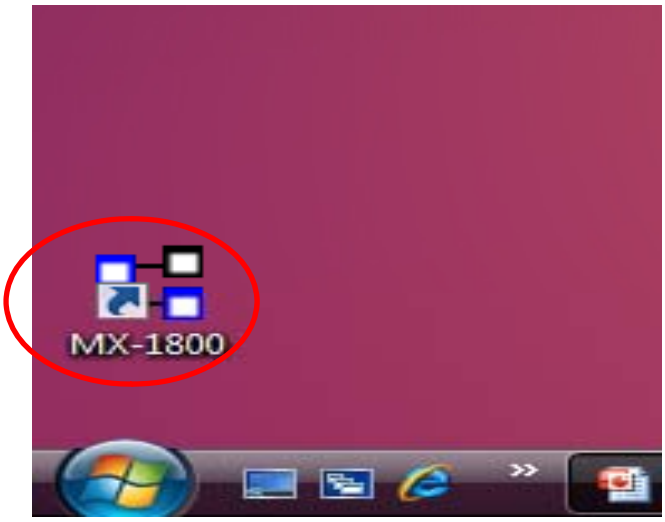
< Picture G – 1 >

RS-232C

**PC Control Software**

Step 1. Click MX-1800 icon to execute the PC Digital Controller program.

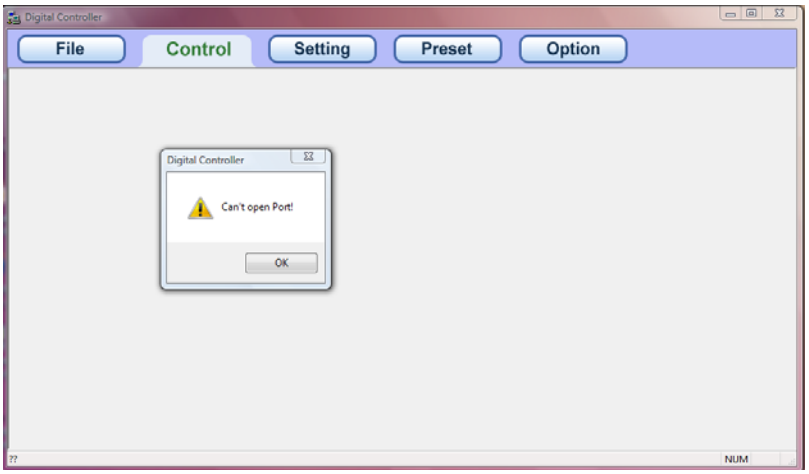
<Please refer to Picture H-1>




< Picture H - 1 >

Step 2. When the PC COM port number you choose doesn't correspond with the control program configuration, "Can't open port!" Message window will appears. Therefore you must to check your COM port setting before you execute the Digital Controller.

<Please refer to Picture H-2>




< Picture H - 2 >

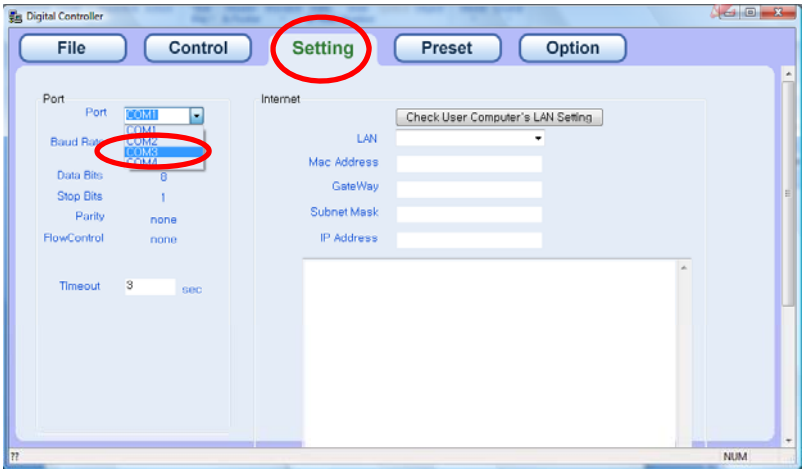
Step 3. Go to “Setting” on the tab menu and select valid COM port.

**Port:** Select the communication port #1 through #4

**Baud Rate:** Select the Baud Rate which is correspond to the connected matrix switcher.

**Timeout:** Configure the delay time for each control command

<Please refer to Picture H-3>

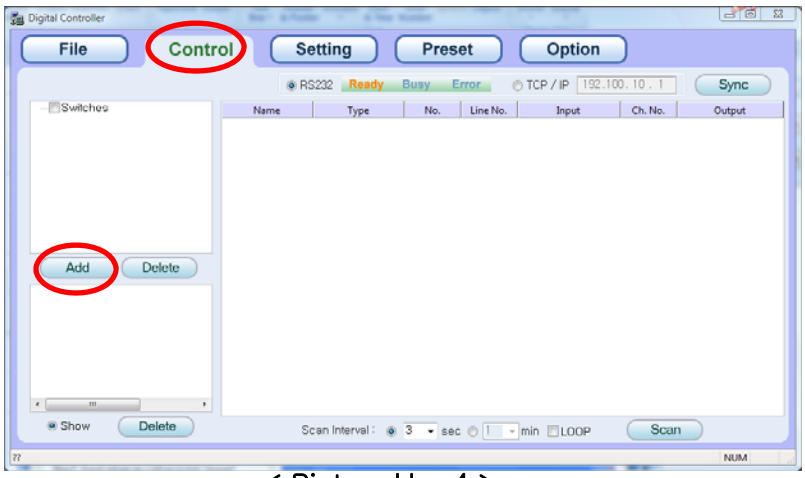



< Picture H – 3 >

**ADD YOUR MATRIX ROUTER**

Step 1. Go to “Control“ and click “Add” button to add the matrix you want to connect with.

<Please refer to Picture H-4>




< Picture H – 4 >

Step 2. Before you click on OK button, you can assign a name to each input and output channel the way you like.

**NAME:** Create the switcher title

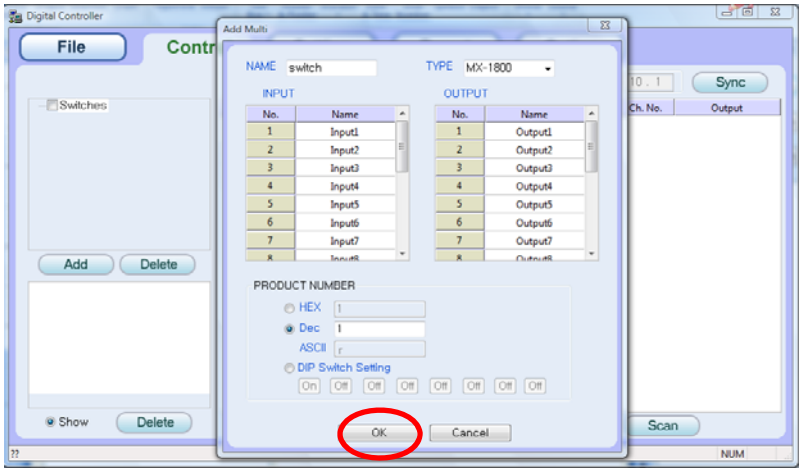
**TYPE:** A fixed selection of MX1800 or MX-3600

**INPUT:** You can assign a name to each Input channel

**OUTPUT:** You can assign a name to each Output channel

**Product Number:** It is same as Product ID number.
*You can select the ID number from 01 to 99 for Decimal value, and by doing it, HEX and ASCII value automatically change to the same value as Decimal value.

<Please refer to Picture H-5>




< Picture H – 5 >

Step 3. Now you can see an added switch and the list of channels

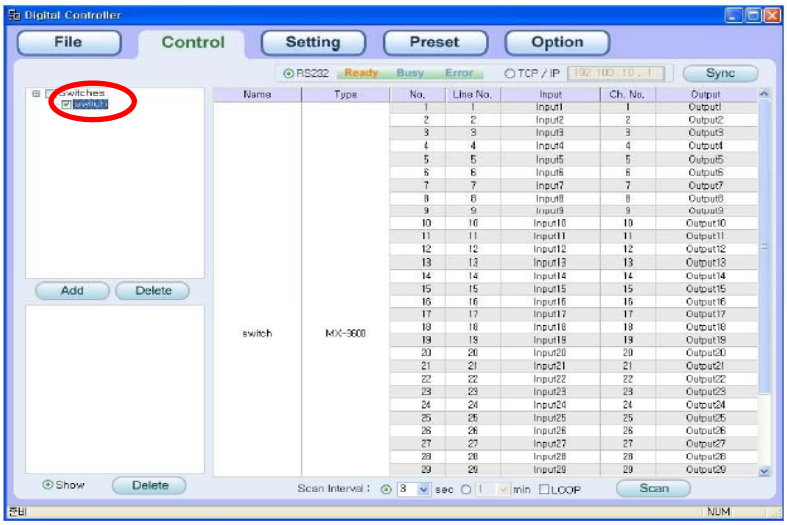
<Please refer to Picture H-6>

< Picture H – 6 >

**To modify the added switcher:**

When you need to make any change on previously added switcher setting, you can go back by double-click on added switcher from the list of switcher box

<Please refer to Picture H-7>

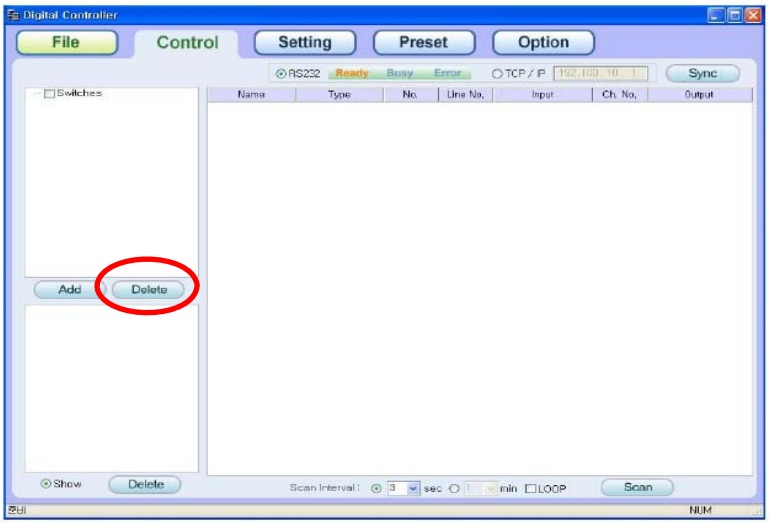



< Picture H – 7 >

**To delete the added switcher:**

When you want to delete the added switcher from the switcher list, you need to select and highlight the switcher, then click on Delete key.

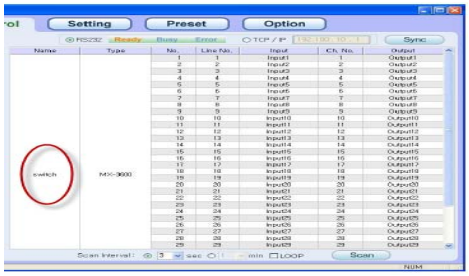
<Please refer to Picture H-8>




< Picture H – 8 >

**To use Pannel window:**

Selecting and changing input/output channel can be easily performed by using the Pannel window.
To activate the Pannel window, double click NAME column as shown under.



**Create:** Use to create a new input/output channel

**EDID:** Register EDID information

**Preview:** Shows the detail and condition of current setup

**Enter:** Create and Save

**Cancel:** To cancel the configuration

**Close:** To close PANNEL window

**SetAll:** Select all Input & Output Channel

**ClearAll:** Unselect all channel

< Please refer to Picture H-9>

**CHANNEL SWITCHING & SCAN**

Step 1. When you click on any Line No., you will see a number selection box which allows you to choose or change the input channel.

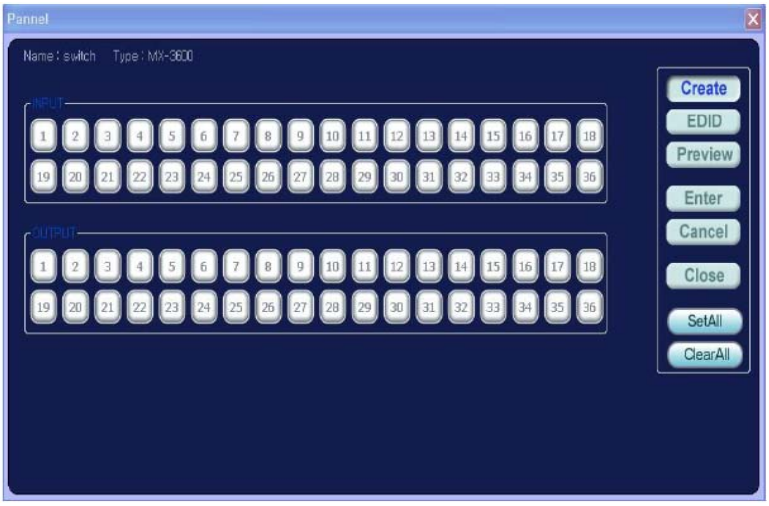
*Line No. represents the Input channel
*No. represents the Output channel

<Please refer to Picture H-10>

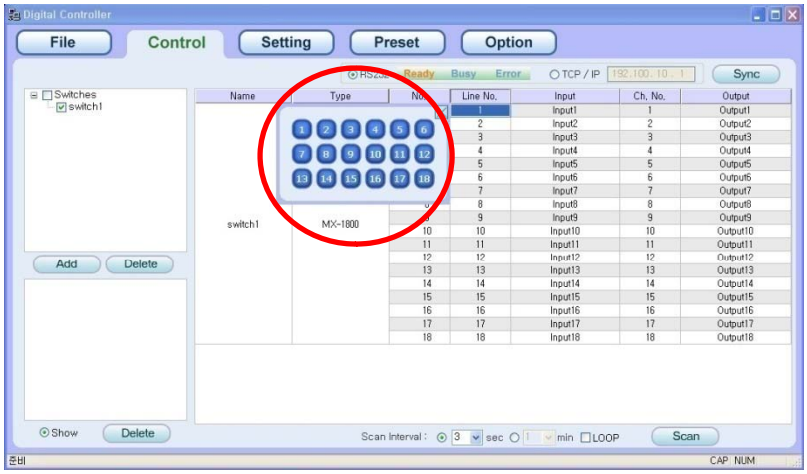
Step 2. You can select which channel to scan by clicking on any No. box. The selected No. box will have a green checkmark on it. The time of scan interval is adjustable from 1-8 second or 1-8 minutes. After selecting the channel, click on Scan to start the scan.

* If you look at the bottom of left corner, it will show the list of command code that is being transmitted to the Matrix router.

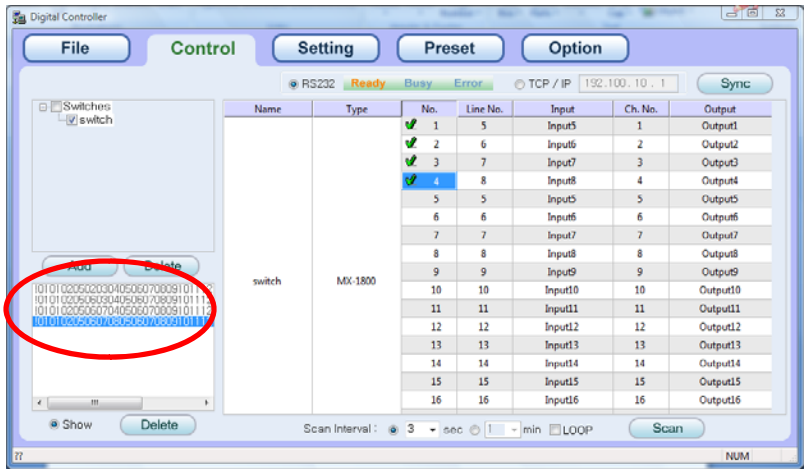
<Please refer to Picture H-11>




< Picture H - 9 >




< Picture H - 10 >



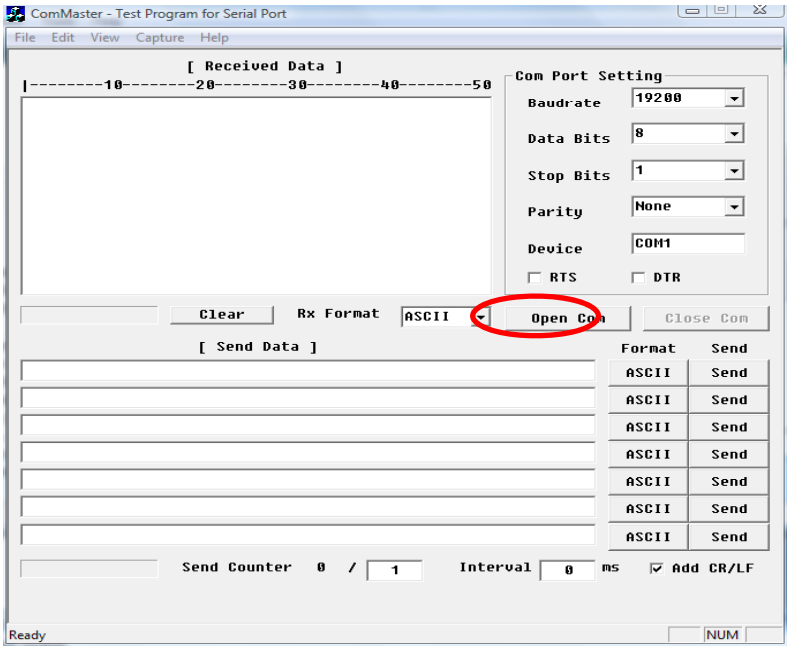

< Picture H - 11 >

RS-232C

**2. Hyper terminal or other applications (For your convenience, we developed an external control software program called “Com-master”.)**

Step1. Execute ComMaster program and click “Open Com” button.

<Please refer to Picture I-1>



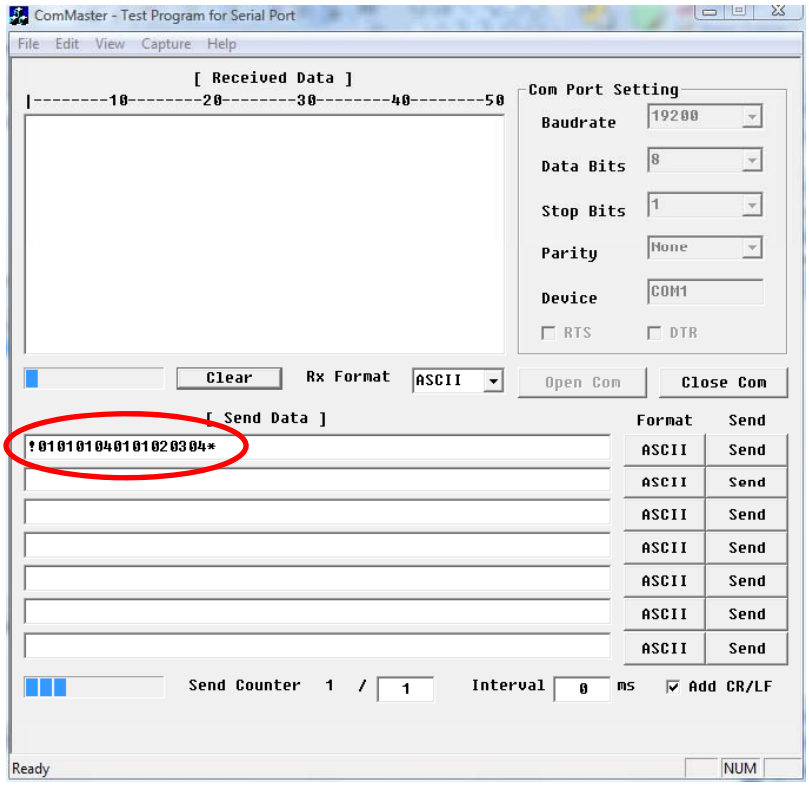

< Picture I – 1 >

Step2. In Pic I-2, it is shows a command code as an example; to route input 1 to output 1,2,3 and 4.

*ASCII command code:
!0101010401010203 04*.

<Please refer to Picture I-2>

*You can find more sample command code on page 30.




< Picture I – 2 >

RS-232C

Example of communication code when product ID is set to “01”.

Example of communication code when product ID is set to “01”.

<Please refer to Picture I-3>

.

Step3. Click “Send” button. If the command code you send is correct, you will see a response value !010101* on the Received Data window

<Please refer to Picture I-4>

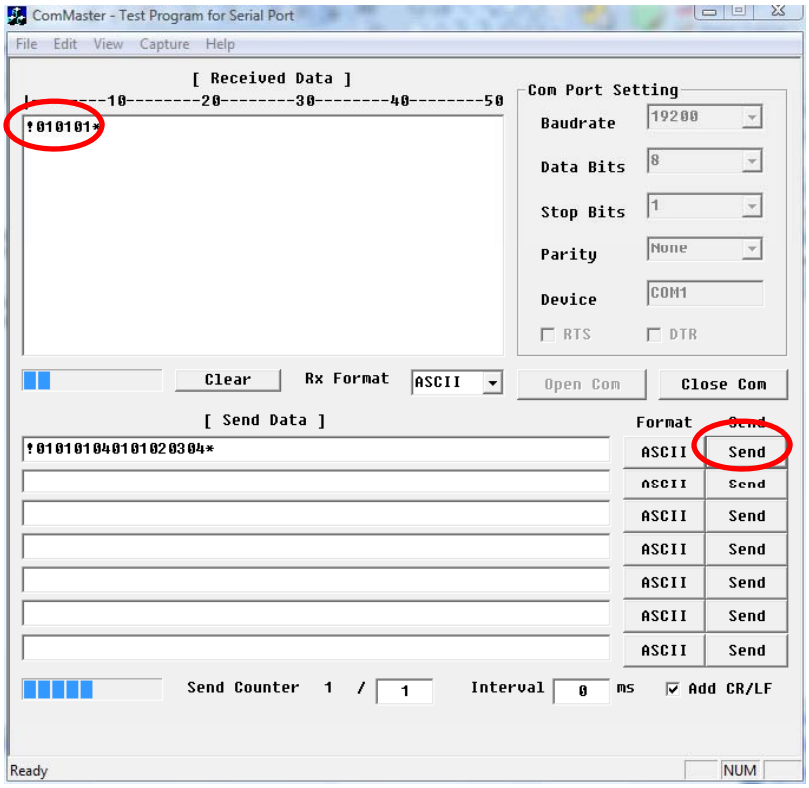
**INPUT SW ASSIGN**: assign input 5 to three outputs: output 3, 4, and 6

| Byte | Header | | | ID | | Command | | Number of Output | | Input | | Output 1 | | Output 2 | | Output 3 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 5 | 0 | 3 | 0 | 4 | 1 | 6 |
| Hex | 21h | 30h | 31h | 30h | 31h | 30h | 31h | 30h | 33h | 30h | 35h | 30h | 33h | 30h | 34h | 30h | 36h |
| Byte | Tail | | | | | | | | | | | | | | | | |
| ASCII | * | | | | | | | | | | | | | | | | |
| Hex | 2Ah | | | | | | | | | | | | | | | | |

**INPUT SW ASSIGN SALVO**: change input and output of whole channel

| Byte | Header | | | ID | | Command | | Output1 of Input | | Output2 of Input | | Output3 of Input | | Output4 of Input | | Output5 of Input | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 |
| Hex | 21h | 30h | 31h | 30h | 31h | 30h | 32h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h |
| Byte | Output6 of Input | | Output7 of Input | | Output8 of Input | | Output9 of Input | | Output10 of Input | | Output11 of Input | | Output12 of Input | | Output13 of Input | |
| ASCII | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 |
| Hex | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h |
| Byte | Output14 of Input | | Output15 of Input | | Output16 of Input | | Output17 of Input | | Output18 of Input | | Tail | | | | | |
| ASCII | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | * | | | | | |
| Hex | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 2Ah | | | | | |

< Picture I – 3 >




< Picture I – 4 >

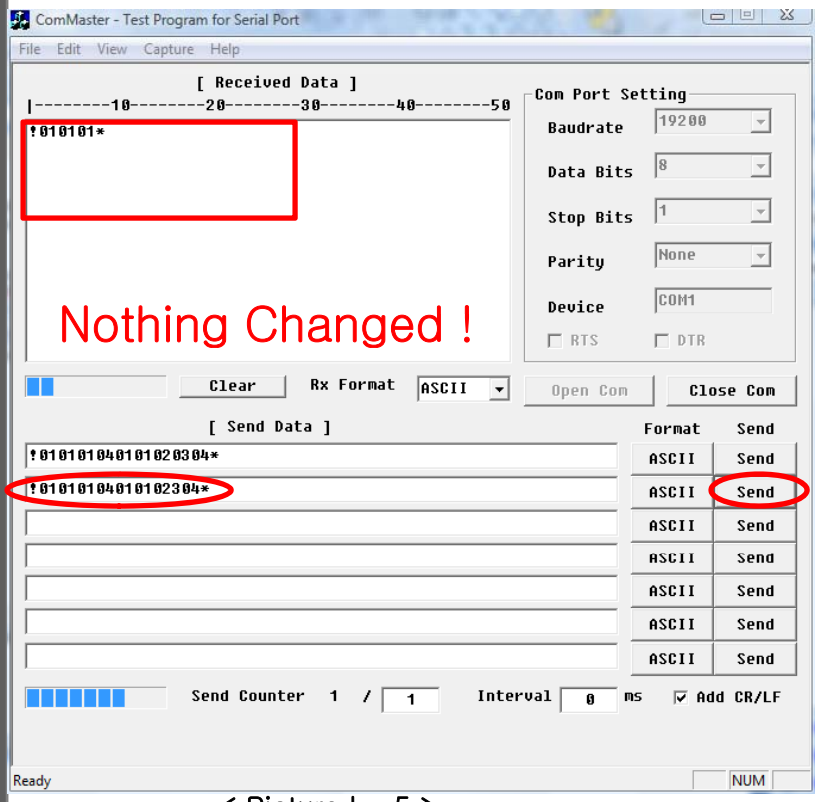
RS-232C

When an incorrect command is send to the matrix router, there won't be any response.

Example of Incorrect command

!0101010302304*

<Please refer to Picture I-5>




< Picture I – 5 >

LAN (TCP/IP)

**PC Control Software**

Step 1. Go to System Config on the touch panel screen.

Step 2. Select LAN icon to set up the network configuration.

**Local IP Address:** Set up local IP Address / default: 192.168.000.002

**Gateway IP Address:** Set up Gateway IP Address / default: 192.168.000.001

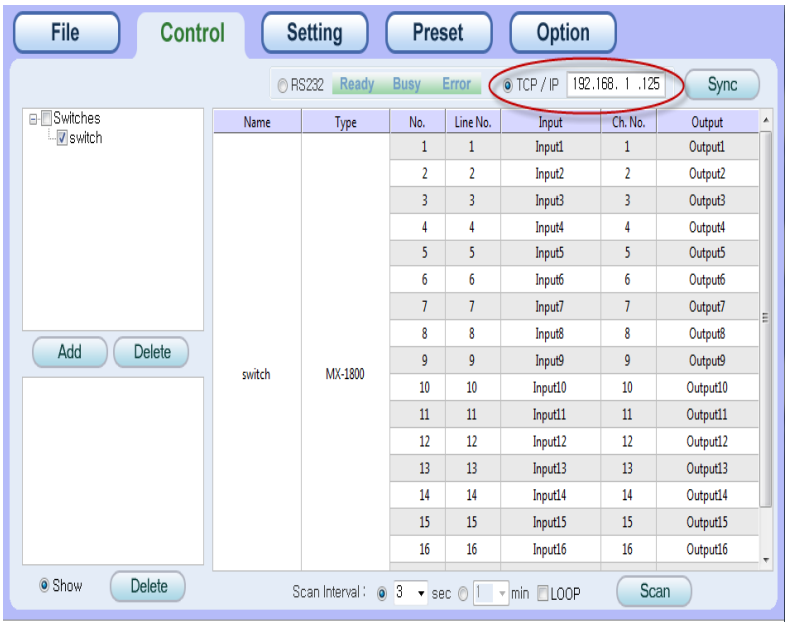
**Subnet Mask:** Set up Subnet Mask / default: 255.255.255.255

**Mac Address:** Set up Mac Address/ default: 00.08.DC.00.00.00

Step 3. Execute MX-1800 / 3600 control program.

Step 4. Enter the same IP address as you already set up in the router. Your LAN connection is now complete.

< Picture J – 1 >



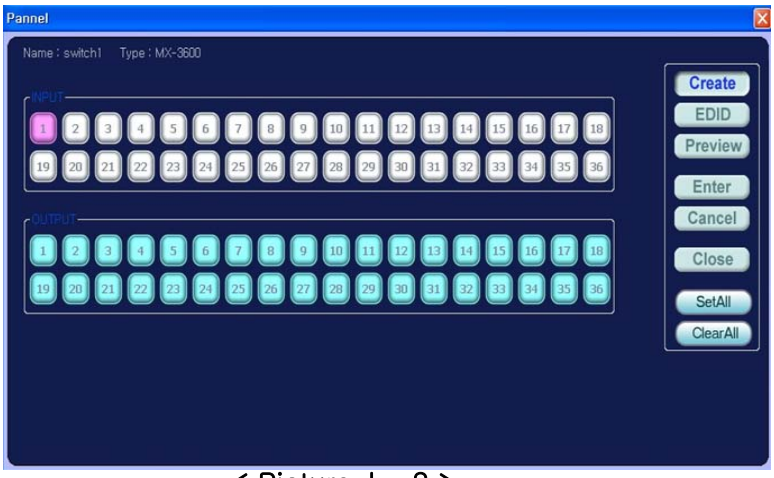

< Picture J – 2 >

LAN (TCP/IP)

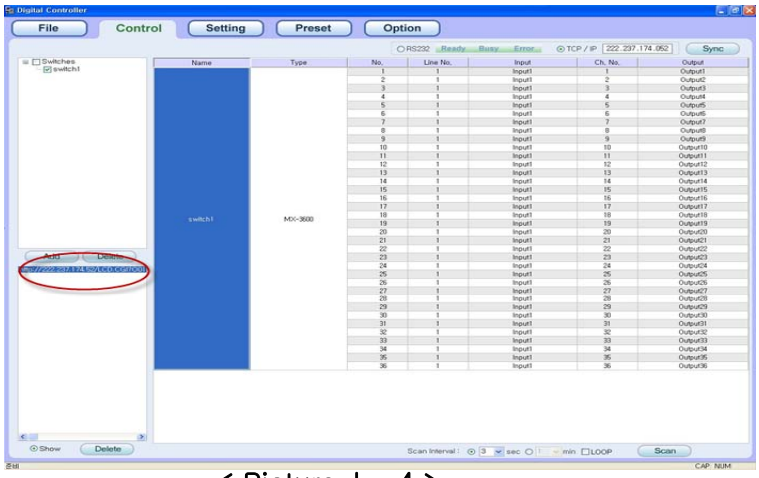
Step 5. Open the Pannel window to create any channel. In J – 3, the input #1 channel is being routed to all output channels

Step 6. Press enter key to create channel and close Pannel window.

Step 7. Now, Input #1 is assigned to all output channel and you can confirm whether the command has been sent to router by checking the command data at the bottom of left corner. <Please refer to Pic J-4>




< Picture J – 3 >



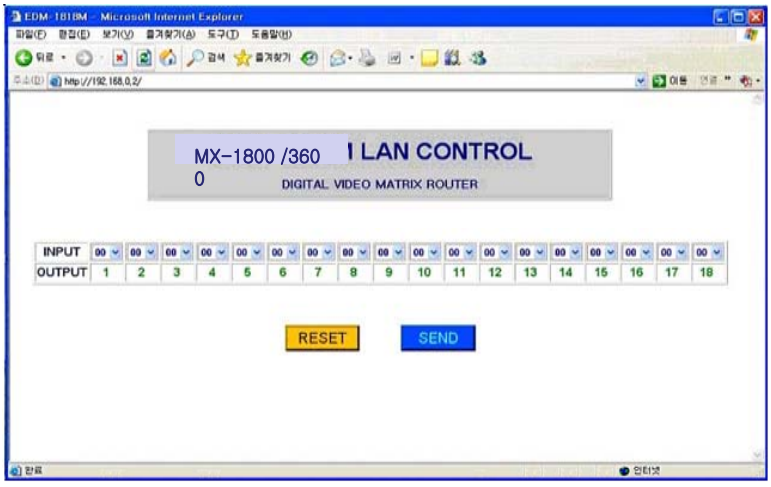

< Picture J – 4 >

**Internet Explorer LAN Control Page**

After you open the web browser and apply the same IP address as the one you already configured in your matrix Router, you will be connected to LAN Control page and able to switch channel or reset the router.

If you select Input channel for output and press SEND, the channel will be changed.

<Please refer to Picture J-5>




< Picture J – 5 >

LAN (TCP /IP)

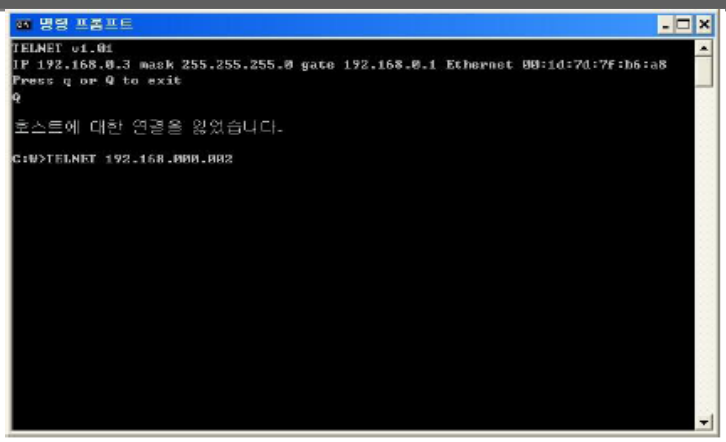
**TelNet Setup**

When you use Telnet via LAN port, it enable you to remotely control Window DOS prompt, Hyper Terminal, and the Telnet program. (Control code is correspond with RS-232 command.)

*Note: When you attempt to use either Telnet or Internet Explorer to communicate with the router, you must not input “0” value in the last three digits of IP address otherwise connect cannot be accomplished

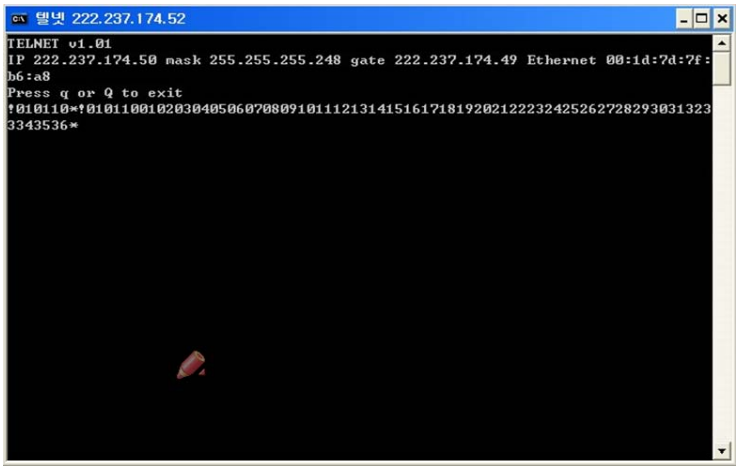
Correct : 192.169. 233. 12

Incorrect : 192. 169. 233. 012




<Enter the router IP address
e.g.) TelNet + IP Address then press enter>

< If Telnet is successfully connected, LAN setting information will appears on the window>




<To confirm the setting, you need to send the following code: !010110* and then you will be receiving the response value>

# 4. Communication Code Configuration

## 4-1.The Structure of Command code for RS-232 & LAN Communication

| From Computer | | |
|---|---|---|
| Code (48Byte) | Start Header (3Byte) \| Product ID (2Byte) \| Command (2Byte) \| Data (40Byte) \| Tail (1Byte) | |
| Code Name | Byte Data | Function |
| Start Header | 21h (!) | Request Frame Start |
| Start Header | 30h (0) | Request Frame Start |
| Start Header | 31h (1) | Request Frame Start |
| Product ID | 30h ~ 39h (DIP Switch Set) | Product Number |
| Product ID | 30h ~ 39h (DIP Switch Set) | Product Number |
| Command | 01 | Input SW Assign |
| | 02 | Input SW Assign Salvo |
| | 03 | EDID SW Assign |
| | 04 | EDID SW Assign Salvo |
| | 10 | Assignment Status Request |
| | 20 | Reset |
| | 30 | Firmware Version Request |
| | 40 | RS-232C Assign |
| Input Data10 | 30h ~ 39h | Input Channel Select |
| Input Data1 | 30h ~ 39h | Input Channel Select |
| Output First Data10 | 30h ~ 39h | Output A Input Select Data |
| Output First Data1 | 30h ~ 39h | Output B Input Select Data |
| Output Last Data10 | 30h ~ 39h | Output N Input Select Data |
| Output Last Data1 | 30h ~ 39h | Output O Input Select Data |
| Tail (End) | 2Ah(*) | Frame End |

| From Matrix Router | | |
|---|---|---|
| Code (8Byte) | Start Header (3Byte) \| Product ID (2Byte) \| Command (2Byte) \| Tail (1Byte) | |
| Code Name | Byte Data | Function |
| Head (Start) | 21h | Reply Frame Start |
| Start Header | 30h (0) | Request Frame Start |
| Start Header | 31h (1) | Request Frame Start |
| Product ID | 30h ~ 39h (DIP Switch Set) | Product Number |
| Product ID | 30h ~ 39h (DIP Switch Set) | Product Number |
| Command | 01,02,03,04,10,20,30,40 | Command Return |
| Tail (End) | 2Ah | Frame End |

**Example of Command Code.**

Example of communication code when product ID is set to “01”.

**INPUT SW ASSIGN**: assign input 5 to three outputs: output 3, 4, and 6

| Byte | Header | | | ID | | Command | | Number of Output | | Input | | Output 1 | | Output 2 | | Output 3 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 5 | 0 | 3 | 0 | 4 | 1 | 6 |
| Hex | 21h | 30h | 31h | 30h | 31h | 30h | 31h | 30h | 33h | 30h | 35h | 30h | 33h | 30h | 34h | 30h | 36h |
| Byte | Tail | | | | | | | | | | | | | | | | |
| ASCII | * | | | | | | | | | | | | | | | | |
| Hex | 2Ah | | | | | | | | | | | | | | | | |

**INPUT SW ASSIGN SALVO**: change input and output of whole channel

| Byte | Header | | | ID | | Command | | Output1 of Input | | Output2 of Input | | Output3 of Input | | Output4 of Input | | Output5 of Input | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 |
| Hex | 21h | 30h | 31h | 30h | 31h | 30h | 32h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h |
| Byte | Output6 of Input | | Output7 of Input | | Output8 of Input | | Output9 of Input | | Output10 of Input | | Output11 of Input | | Output12 of Input | | Output13 of Input | |
| ASCII | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 |
| Hex | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h |
| Byte | Output14 of Input | | Output15 of Input | | Output16 of Input | | Output17 of Input | | Output18 of Input | | Tail | | | | | |
| ASCII | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | * | | | | | |
| Hex | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 2Ah | | | | | |

**EDID SW ASSIGN**: save EDID data of output 5 to input 1 and 2

| Byte | Header | | | ID | | Command | | Number of Output | | Output | | Input 1 | | Input 2 | | Tail | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 2 | 0 | 5 | 0 | 1 | 0 | 3 | * | |
| Hex | 21h | 30h | 31h | 30h | 31h | 30h | 33h | 30h | 32h | 30h | 35h | 30h | 31h | 30h | 33h | 2Ah | |

**EDID SW ASSIGN SALVO**: change EDID data of whole channel

| Byte | Header | | | ID | | Command | | Output1 of Input | | Output2 of Input | | Output3 of Input | | Output4 of Input | | Output5 of Input | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 0 | 4 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 |
| Hex | 21h | 30h | 31h | 30h | 31h | 31h | 34h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h |
| Byte | Output6 of Input | | Output7 of Input | | Output8 of Input | | Output9 of Input | | Output10 of Input | | Output11 of Input | | Output12 of Input | | Output13 of Input | |
| ASCII | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 |
| Hex | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h |
| Byte | Output14 of Input | | Output15 of Input | | Output16 of Input | | Output17 of Input | | Output18 of Input | | Tail | | | | | |

**Baud rate:**

“ 00 ” : 1920 bps
“ 01 ” : 4800 bps
“ 02 ” : 9600 bps
“ 03 ” : 14400 bps
“ 04 ” : 19200 bps
“ 05 ” : 28800 bps
“ 06 ” : 38400 bps
“ 07 ” : 57600 bps
“ 08 ” : 76800 bps

**Data bit:**

“ 00 ” : 8 bit
“ 01 ” : 5 bit
“ 02 ” : 6 bit
“ 03 ” : 7 bit

**Stop bit:**

“ 00 ” : 1 bit
“ 01 ” : 2 bit

**Parity bit:**

“ 00 ” : disable
“ 01 ” : even parity
“ 02 ” : odd parity

| ASCII | 0 | 7 | 1 | 2 | 0 | 7 | 1 | 2 | 0 | 7 | * | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 30h | 37h | 31h | 32h | 30h | 37h | 31h | 32h | 30h | 37h | 2Ah | | | | | |

**ASSIGNMENT STATUS REQUEST**: check the status of current input and output channel

| Byte | Header | | | ID | | Command | | Tail | |
|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 1 | 0 | * | |
| Hex | 21h | 30h | 31h | 30h | 31h | 31h | 30h | 2Ah | |

**RESET**: reset Matrix router

| Byte | Header | | | ID | | Command | | Tail | |
|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 2 | 0 | * | |
| Hex | 21h | 30h | 31h | 30h | 31h | 32h | 30h | 2Ah | |

**FIRMWARE VERSION REQUEST**: check firmware version

| Byte | Header | | | ID | | Command | | Tail | |
|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 3 | 0 | * | |
| Hex | 21h | 30h | 31h | 30h | 31h | 33h | 30h | 2Ah | |

**RS-232C ASSIGN**: change the set up of RS-232C communication port (19200bps)

| Byte | Header | | | ID | | Command | | Baud rate | | Data bit | | Stop bit | | Parity bit | | Tail | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASCII | ! | 0 | 1 | 0 | 1 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | * | |
| Hex | 21h | 30h | 31h | 30h | 31h | 34h | 30h | 30h | 34h | 30h | 30h | 30h | 30h | 30h | 30h | 2Ah | |

***** Attention <RS-232C communication control> ****

If user develop own control program, please make sure to confirm the response value after transmit the command code to PC control software program.

**4-2 LAN Communication**

The following data is required in order to switch channels via internet connection

Begin with a string of LCD.CGI",
"O 01 = I 18" represents "Output 01 Input 18", the sequences and the size of strings have to be identical to each other

After the reset, it needs to be connected to server again(switcher).

Channel change

http://192.168.0.2/LCD.CGI?O01=I16&O02=I18&O03=I11&O04=I12&O05=I13&O06=I08&O07=I15&O08=I16&O09=I17&O10=I02&O11=I01&O12=I02&O13=I03&O14=I04&O15=I05&O16=I06&O17=I07&O18=I08&Submit_=SEND

Initialization (Reset)

http://192.168.0.2/LCD.CGI?O01=I16&O02=I18&O03=I11&O04=I12&O05=I13&O06=I08&O07=I15&O08=I16&O09=I17&O10=I02&O11=I01&O12=I02&O13=I03&O14=I04&O15=I05&O16=I06&O17=I07&O18=I08&Submit_=Reset

## 4-3 Connector Pin Assignment POWER INPUT

| Part No. | Pin No. | Description | Remarks |
|---|---|---|---|
| Power Jack(4P) | 1 | VCC( DC12V) | |
| | 2 | VCC(DC12V) | |
| | 3 | GND | |
| | 4 | GND | |

**RS-232C INPUT**

| Part No. | Pin No. | Description | Remarks |
|---|---|---|---|
| D-SUB 9 Pin Connector | 1 | Not used | |
| | 2 | Rx D | |
| | 3 | Tx D | |
| | 4 | Not used | |
| | 5 | GND | |
| | 6 | Not used | |
| | 7 | Not used | |
| | 8 | Not used | |
| | 9 | Not used | |

**LAN INPUT**

| Part No. | Pin No. | Description | Remarks |
|---|---|---|---|
| RJ-45 8 Pin Connector | 1 | Transmit data (+) | |
| | 2 | Transmit data (-) | |
| | 3 | Receive data(+) | |
| | 4 | Not used | |
| | 5 | Not used | |
| | 6 | Receive data(-) | |
| | 7 | Not used | |
| | 8 | Not used | |

**DVI-D INPUT**

| Part No. | Pin No. | Description | Remarks |
|---|---|---|---|
| DVI-D 29 Pin Connector | 1 | TMDS DATA 2M | |
| | 2 | TMDS DATA 2P | |
| | 3 | TMDS DATA 2/4 Shield | |
| | 4 | TMDS DATA 4M(N.C) | |
| | 5 | TMDS DATA 4P(N.C) | |
| | 6 | DDC Clock | |
| | 7 | DDC Data | |
| | 8 | N.C | |
| | 9 | TMDS DATA 1M | |
| | 10 | TMDS DATA 1P | |
| | 11 | TMDS DATA 1/3 Shield | |
| | 12 | TMDS DATA 3M(N.C) | |
| | 13 | TMDS DATA 3P(N.C) | |
| | 14 | 5V | |
| | 15 | GND | |
| | 16 | Hot Plug Detect | |
| | 17 | TMDS DATA 0M | |
| | 18 | TMDS DATA 0P | |

| | | | |
|---|---|---|---|
| | 19 | TMDS DATA 0/5 Shield | |
| | 20 | TMDS DATA 5M(N.C) | |
| | 21 | TMDS DATA 5P(N.C) | |
| | 22 | TMDS DATA Clock Shield | |
| | 23 | TMDS Clock P | |
| | 24 | TMDS Clock M | |
| | 25~29 | N.C | |

# 5. Warranty Information

▪ **2 Years Warranty**

Dtrovision warrants this DVI Switcher to be free from defects in workmanship and materials, under normal use and service, for a period of 2 yeasr from the date of purchase from Dtrovision or its authorized resellers.

If a product does not work as warranted during the applicable warranty period, Dtrovision shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund to customer the purchase price paid for the defective product.

All products that are replaced will become the property of Dtrovision.
Replacement products may be new or reconditioned.
Any replaced or repaired product or part has a ninety (90) day warranty or the reminder of the initial warranty period, whichever is longer.

Dtrovision. shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to Dtrovision for repair under warranty or not.

▪ **Warranty Limitation and Exclusion**

Dtrovision shall have no further obligation under the foregoing limited warranty if the product has been damaged due to abuse, misuse, neglect, accident, unusual physical or electrical stress, unauthorized modifications, tampering, alterations, or service other than by Dtrovision or its authorized agents, causes other than from ordinary use or failure to properly use the product in the application for which said product is intended.

▪ **RETURNS**

All returns MUST have an RMA number. Please contact Dtrovision LLC or your local dealer where you purchased the product.

Dtrovision Service Dept.
Tel: 201-488-3232, Fax: 201-621-6118. Send us email at support@dtrovision.com

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**For help with placing an order, please contact your local distributor or reseller. For any technical question or support you need, please contact us at support@dtrovision.com**